

TIII:

Blocking Oscillator

Unclassified

2 Hour Conference, W/ 5 Hr PE1

**Safety & Environmental Impact is
“LOW”**

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Terminal Learning Objective

Action: Given a schematic diagram answer questions pertaining to the concepts & operational characteristics of the Blocking Oscillator.

Condition: W/O references.

Standard: 70% Minimum.

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Introduction

The blocking Oscillator out put is very narrow pulses, this provides a time base for other circuit operation and is used extensively in Radar Ckts for range mark indicators.

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Creature Features;



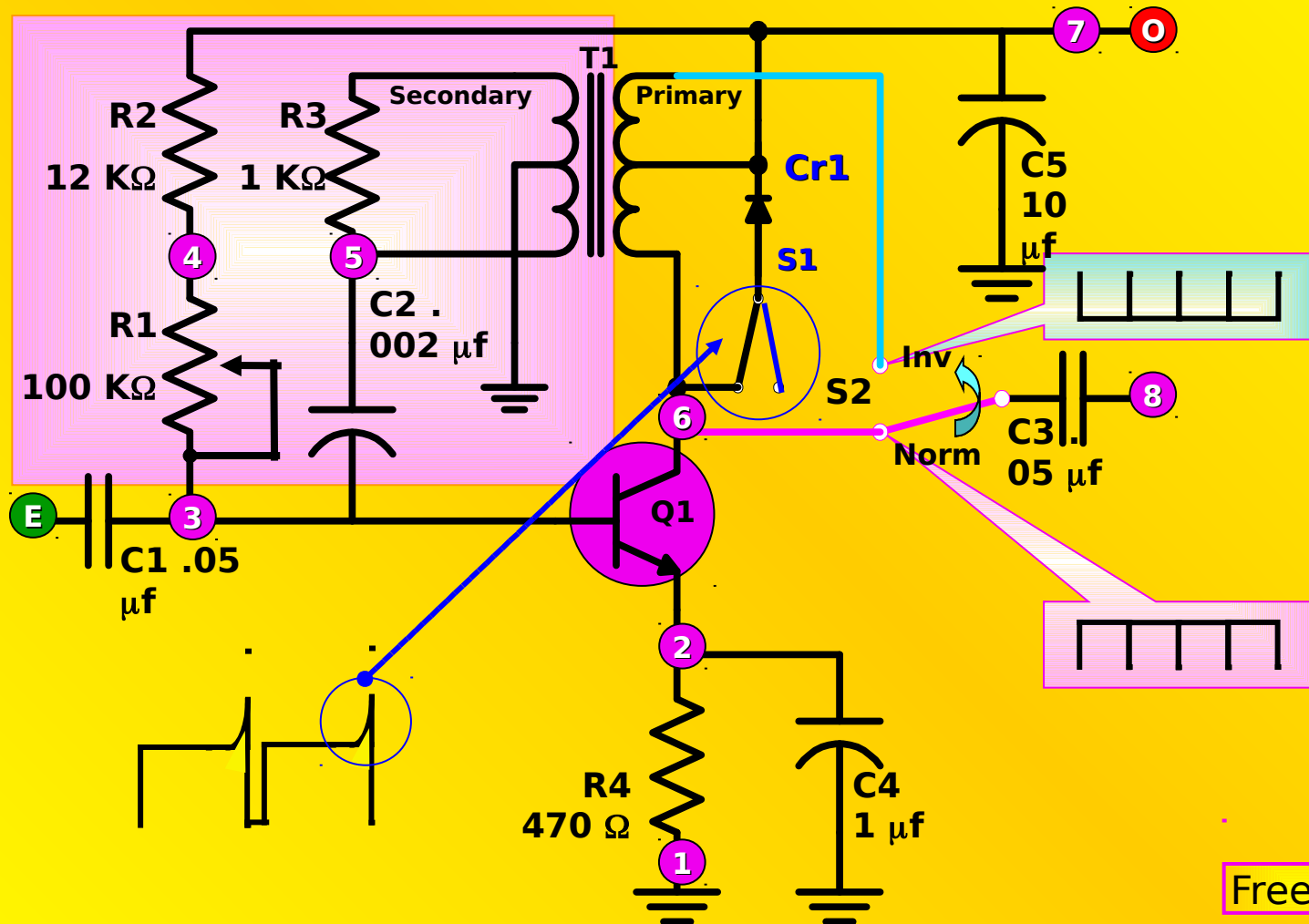
1. **Blocking Osc, used as a Master Oscillator;**
 - a. **Generates Pulses in short duration [Very narrow Pulses].**
 - b. **Triggers or Synchronizes other Ckts.**
2. **Three basic forms or modes of operation.**
 - a. **Free running [Astable].**
 - b. **Synchronized [Loss of trigger reverts to Free Running].**
 - c. **Triggered [depends entirely on an external source].**
3. **Also known as a Relaxation Oscillator.**
 - a. **It generates a non-sinusoidal waveform by quickly charging a capacitor & slowly discharging it through a resistor, [Quick charge slow discharge].**
 - b. **The output is reflective of Q1 conducting & C2 discharging.**
4. **PRF, Pulse Repetition Frequency.**

Component ID

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PC 42; Ckt & Component ID

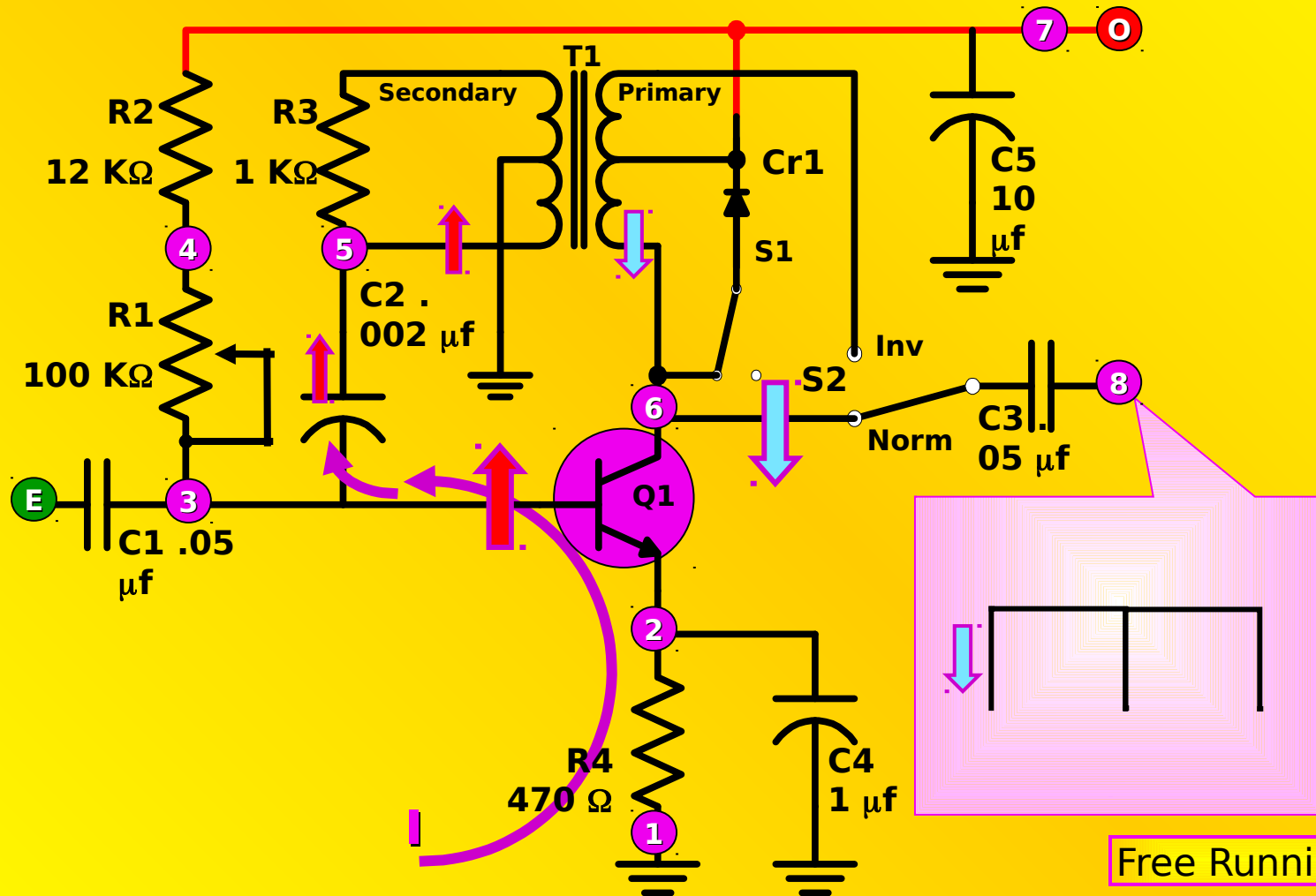


Free Running

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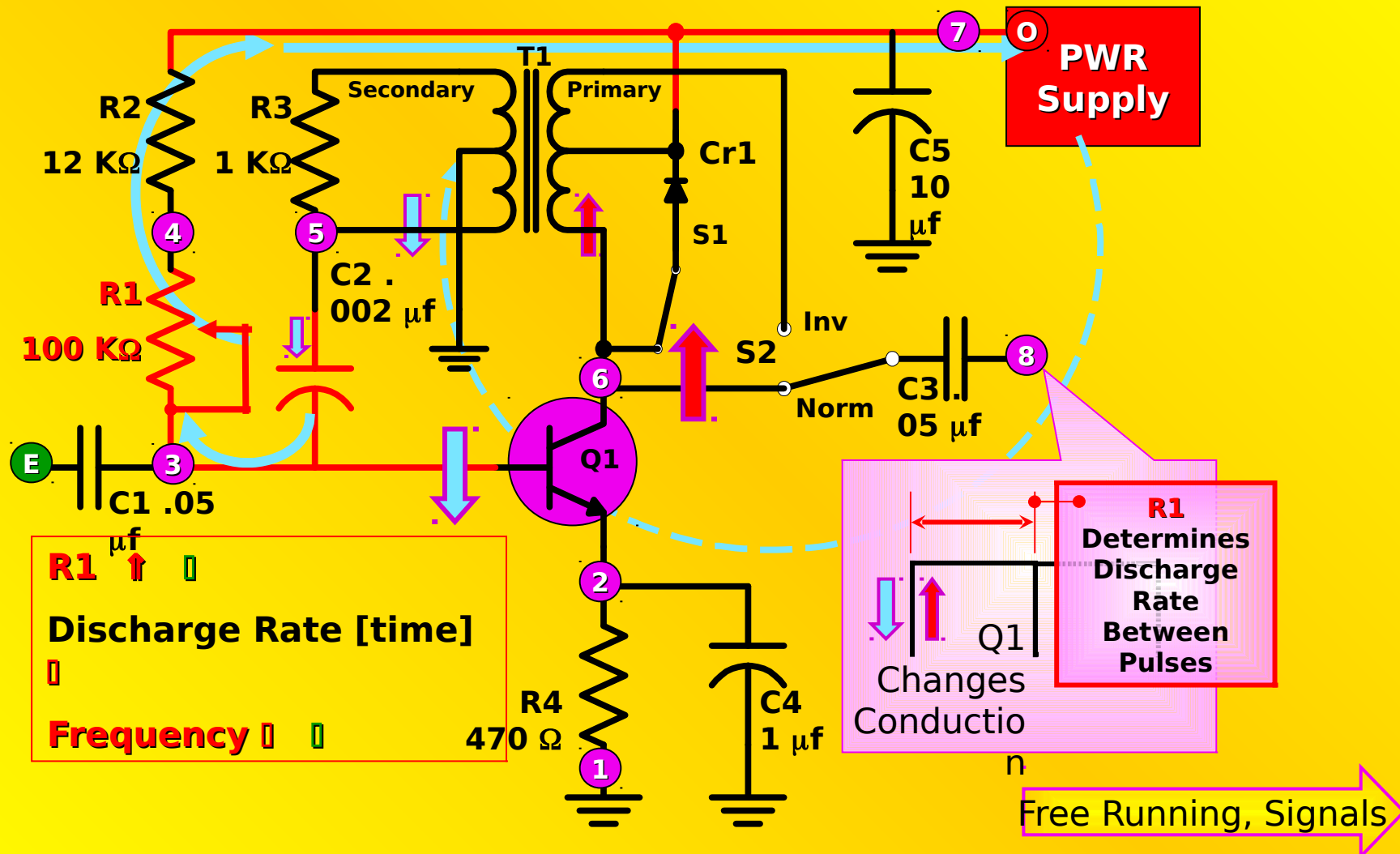
PC 42; Free Running, Q1 Conducts, C2 Charges.



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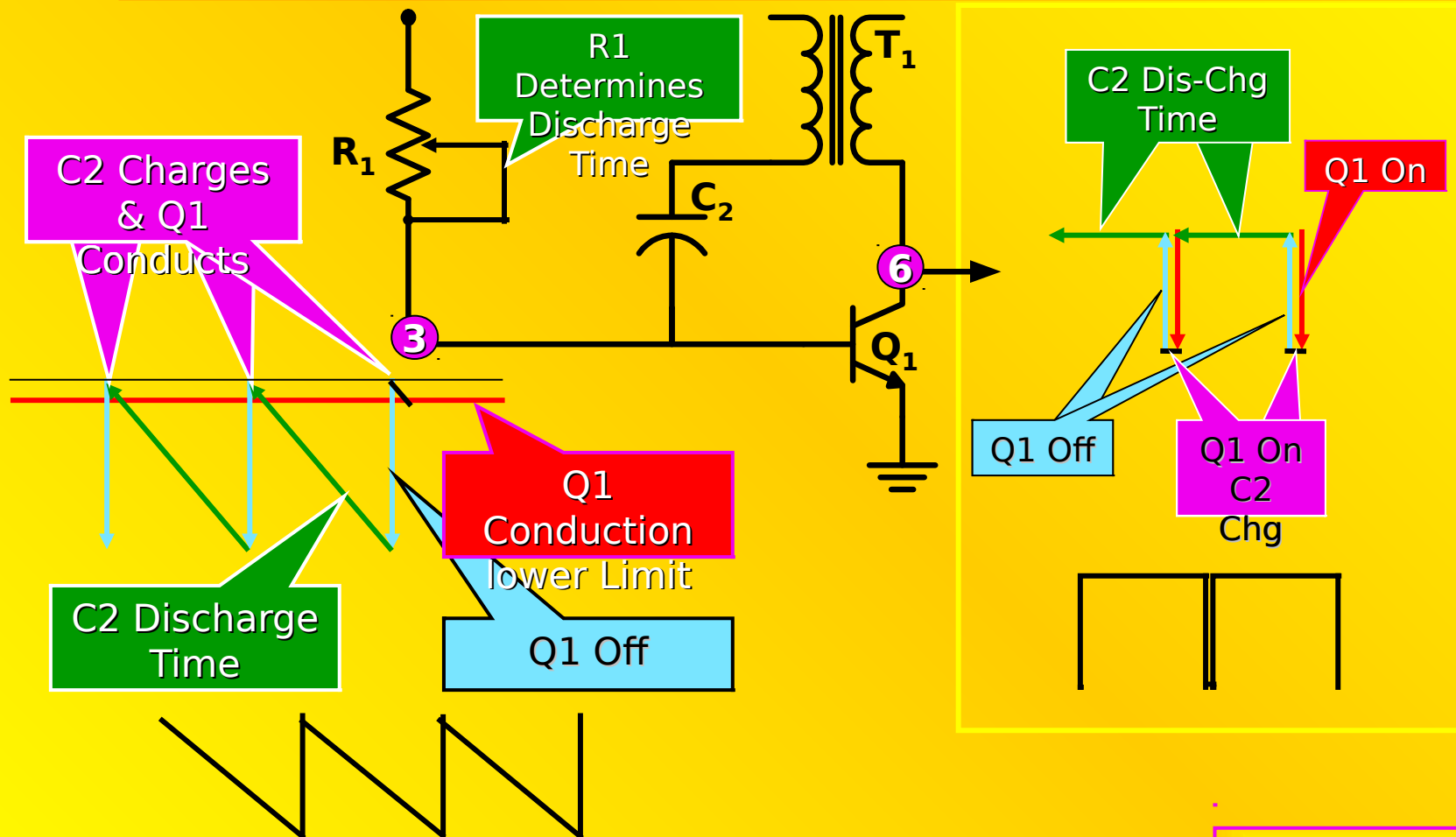
PC 42; Free Running, C2 Discharges, Q1 Cut Off.



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PC 42; Free Running, Base & Collector signal development.

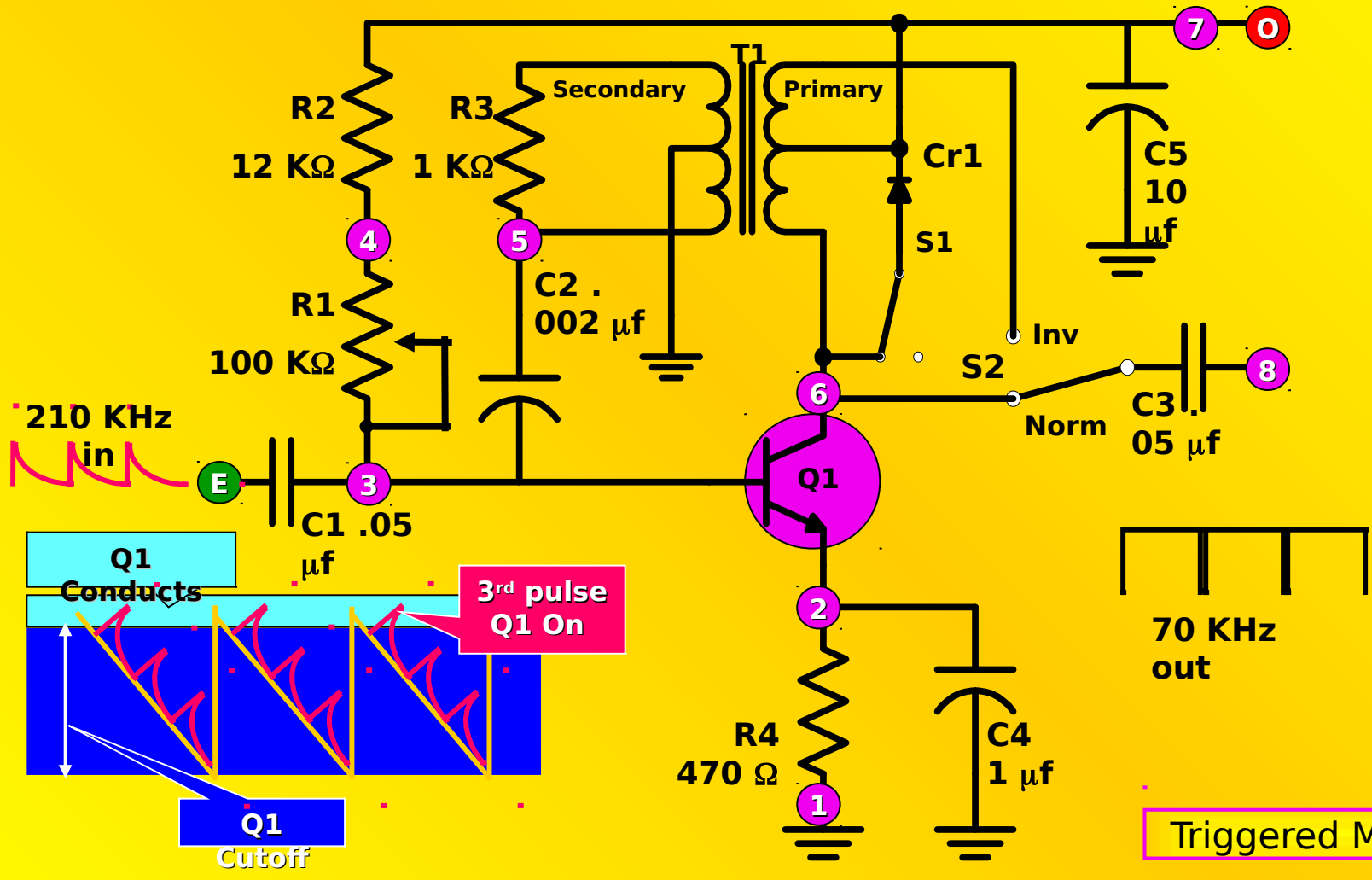


Synchronized Mode

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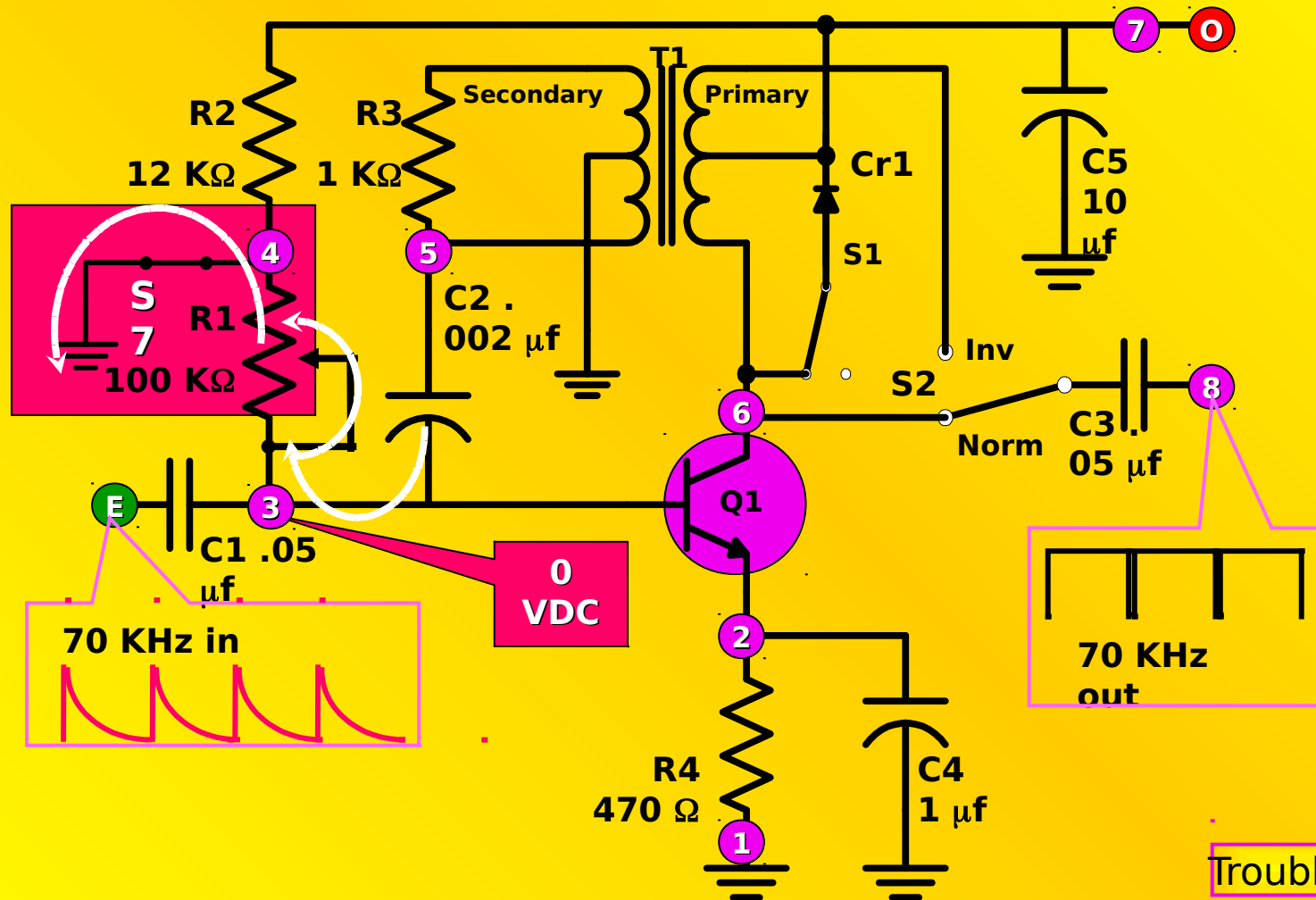
PC 42; Synchronized Mode.



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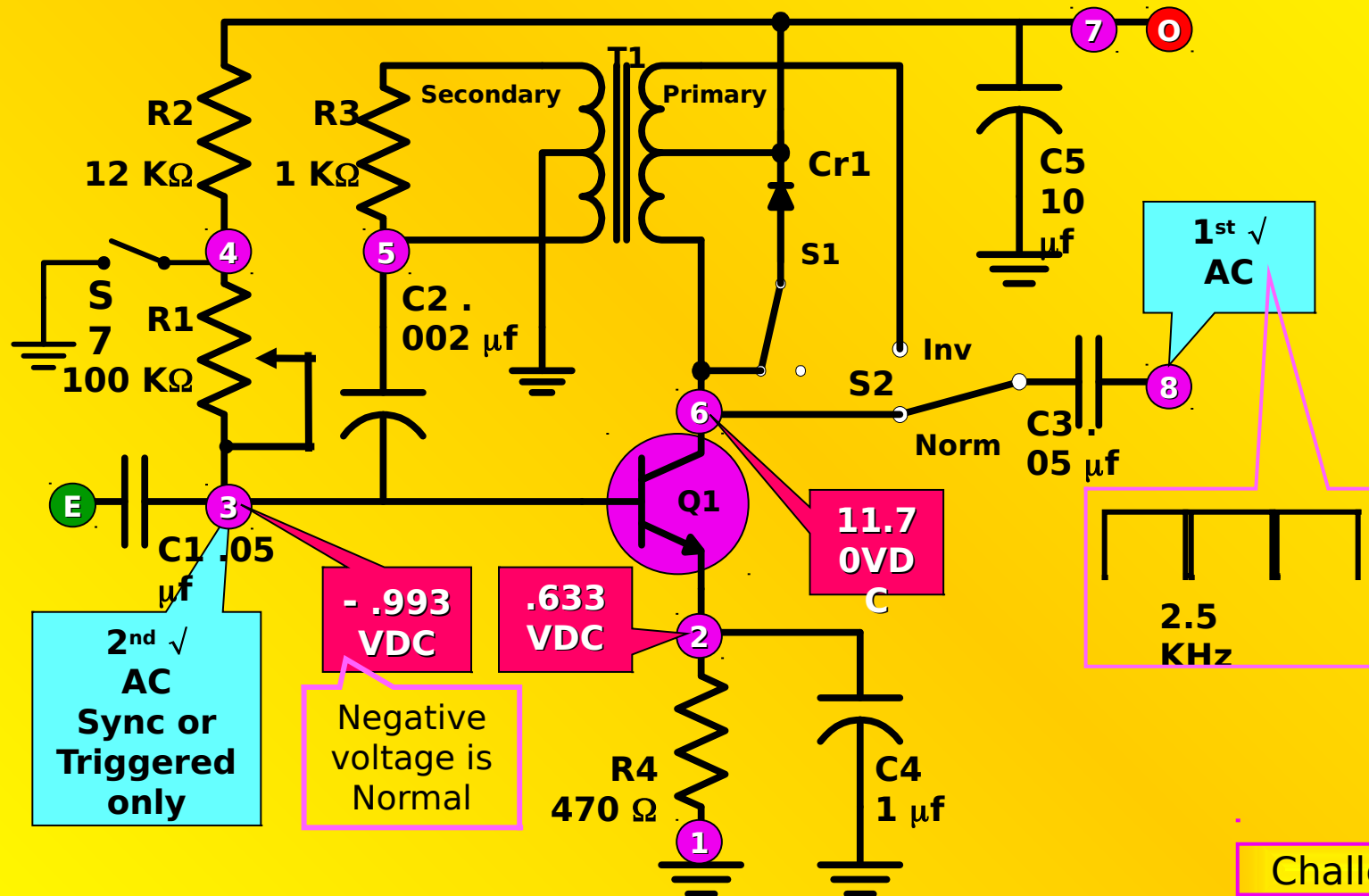
PC 42; Triggered Mode.



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PC 42; Trouble Shooting, Sequence & Norms.

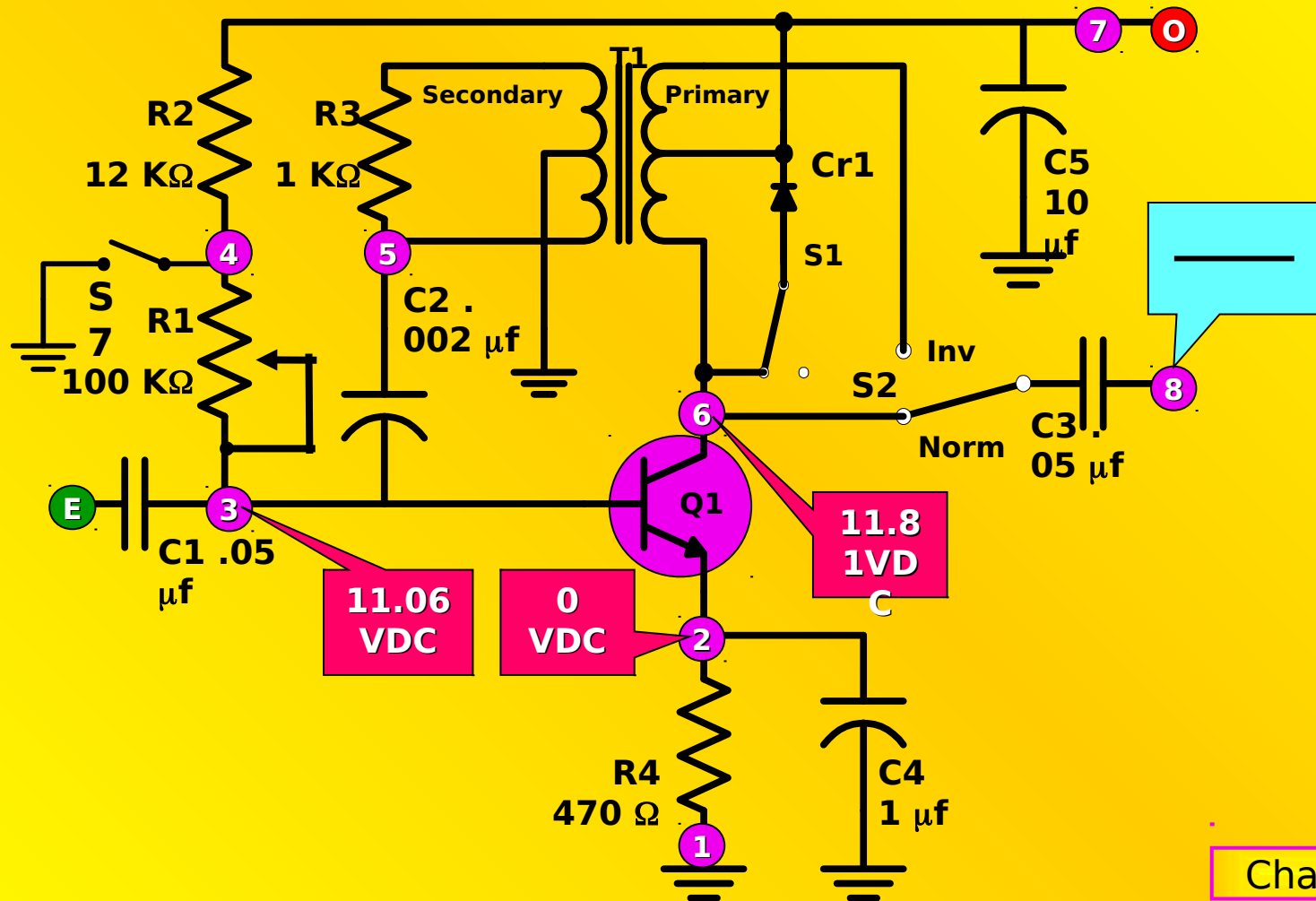


Challenge 1

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PC 42; Trouble Shooting. #1.

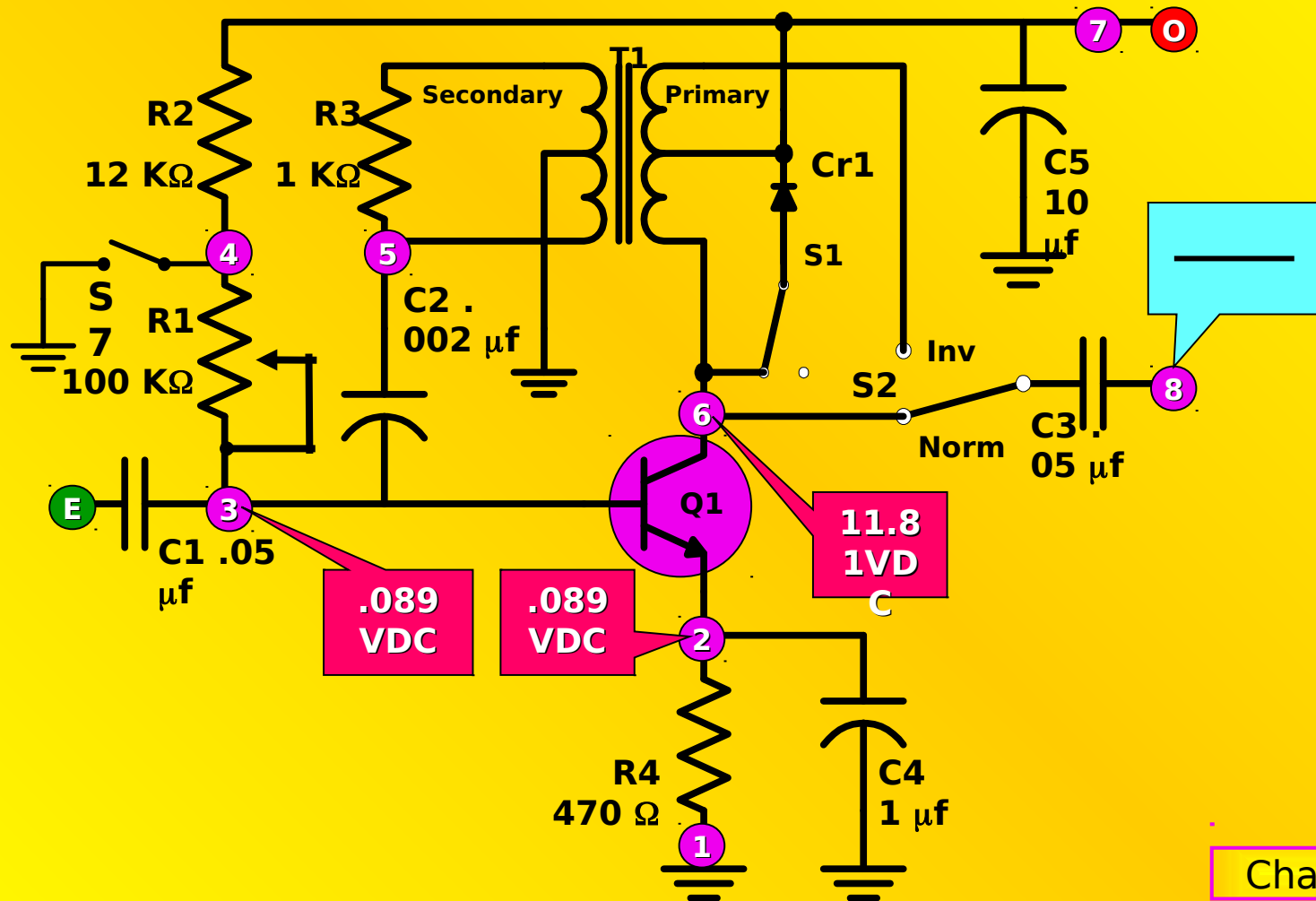


Challenge 2

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PC 42; Trouble Shooting. #2.

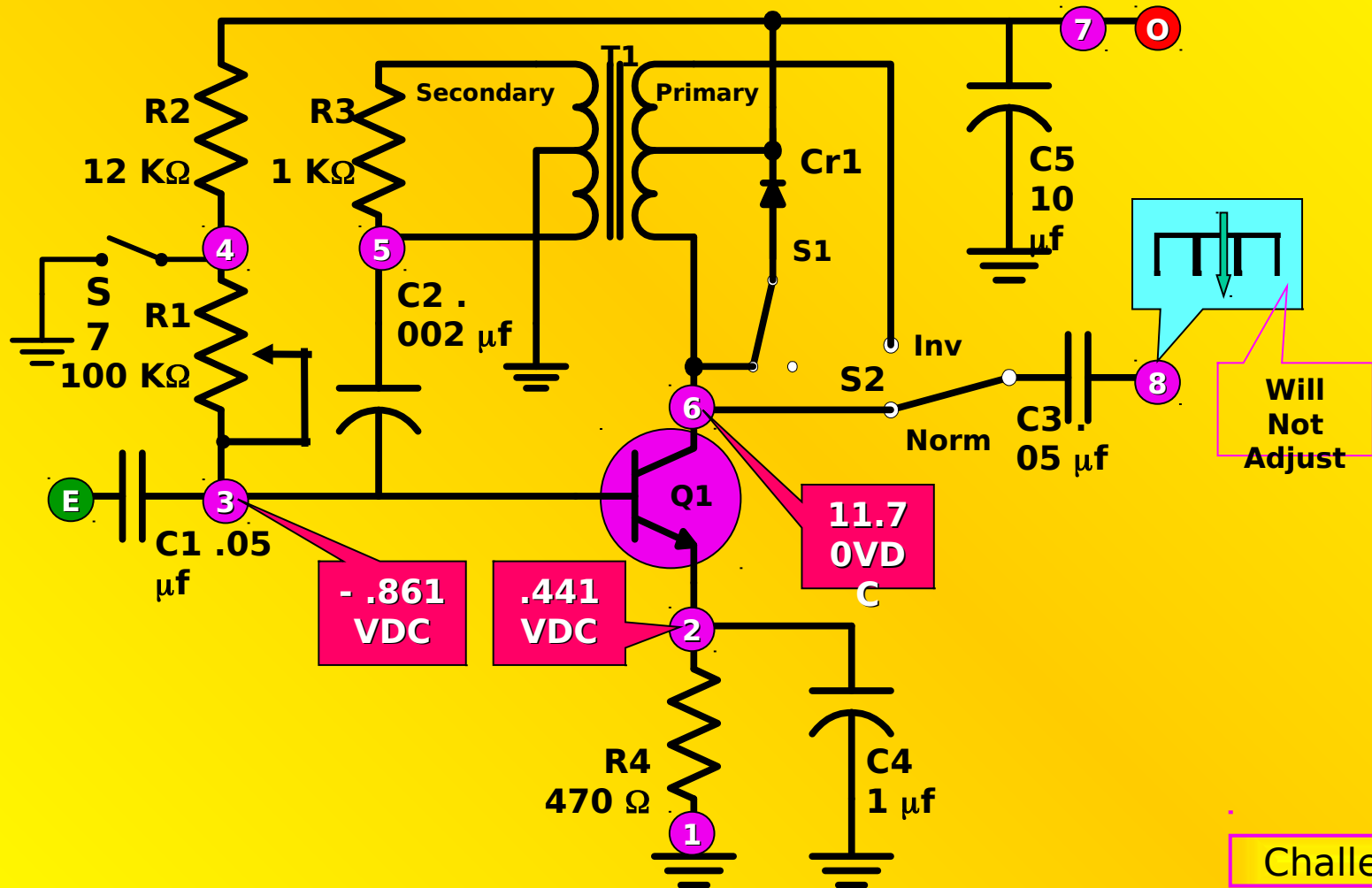


Challenge 3

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PC 42; Trouble Shooting. #3.

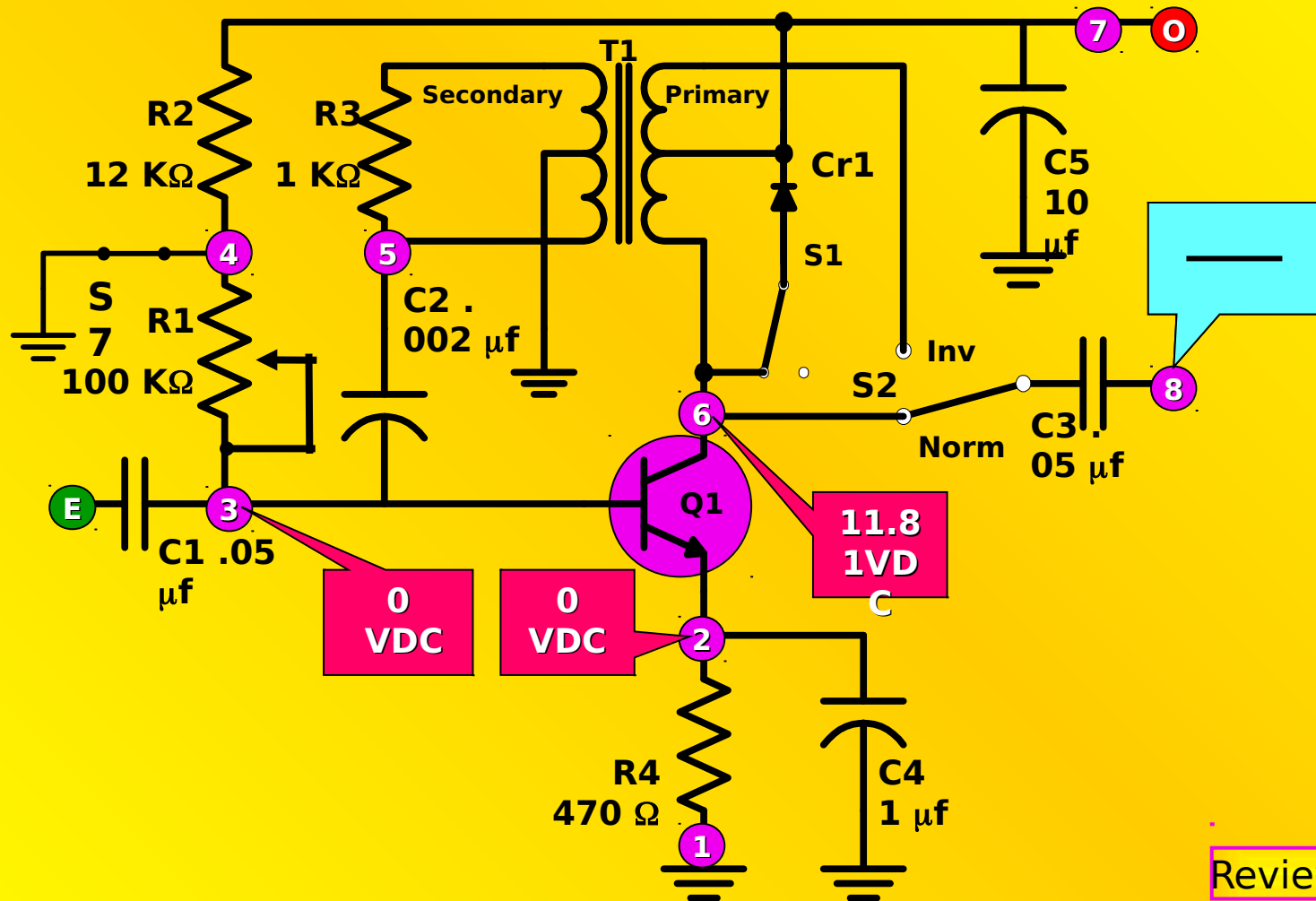


Challenge 4

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PC 42; Trouble Shooting. #4.



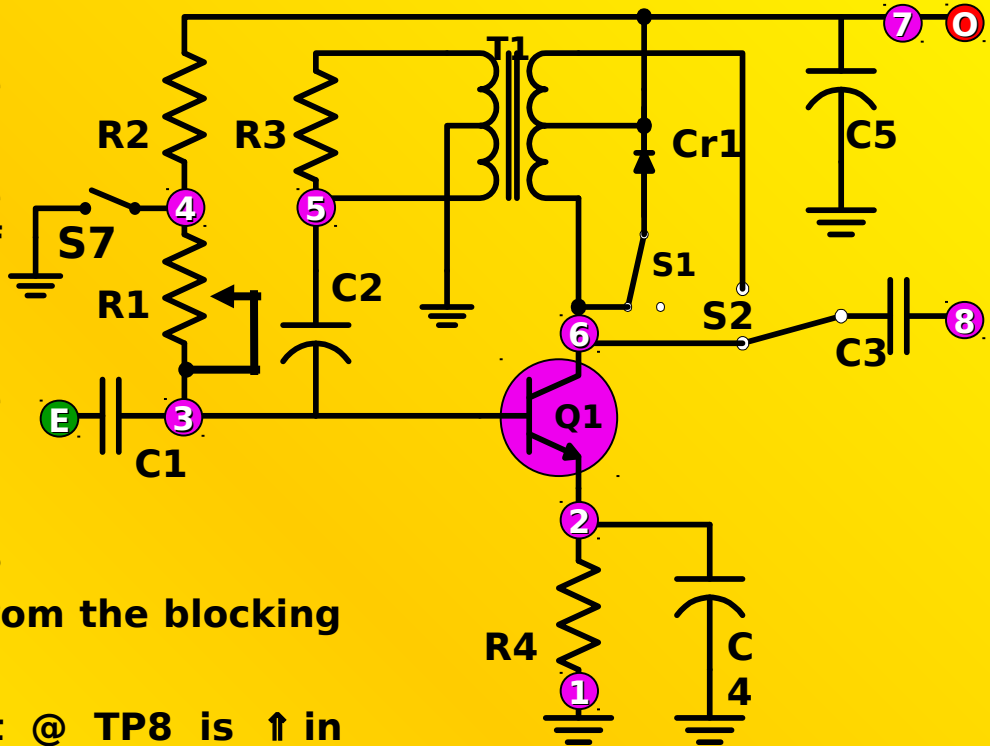
Review Lessons

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PC 42; Review Questions.

1. What components on PC 42 control [s] the length of time Q1 Conducts? _____
2. What will happen to the output frequency of PC 42 if R1 is increased in value? _____
3. What determines the time between the output pulses? _____
4. What Ckt componates provide the positive bias voltage to the base of Q1.
5. When do the output pulses from the blocking Oscillator occur? _____
6. Refer to PC 42. The output @ TP8 is ↑ in Frequency, R1 does not adjust. What is the malfunction? _____
7. What is the purpose of CR1 on PC 42 ? _____



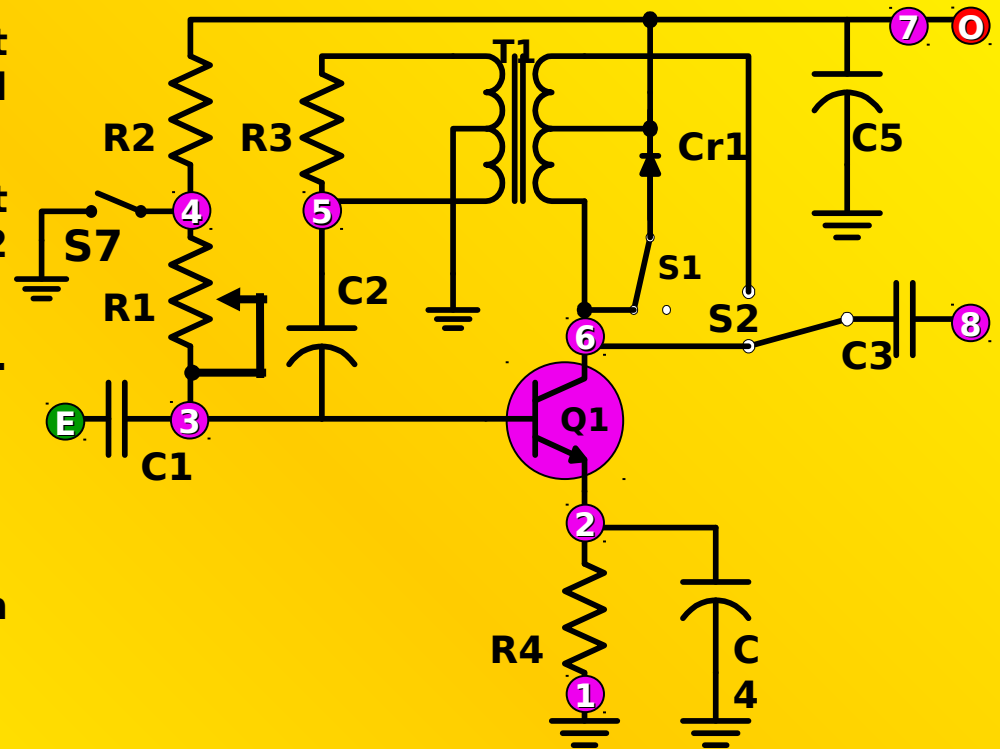
Answer 1-7

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PC 42; Review Questions.

8. What controls the output frequency of the Triggered Blocking Oscillator. _____
9. What kind of output waveform does PC 42 produce? _____
10. Refer to Pc 42 . R1 is Open. What would indicate this?
 - a. 0 V on the Collector.
 - b. 0 V on the Base.
 - c. Higher than normal on the Emitter.
 - d. VCC on the Emitter.



Answers 8-10

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Lesson Test;

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**Standard: 10 Questions W/in 20
Minutes. 70% Minimum
Accuracy.**

Reference: None.

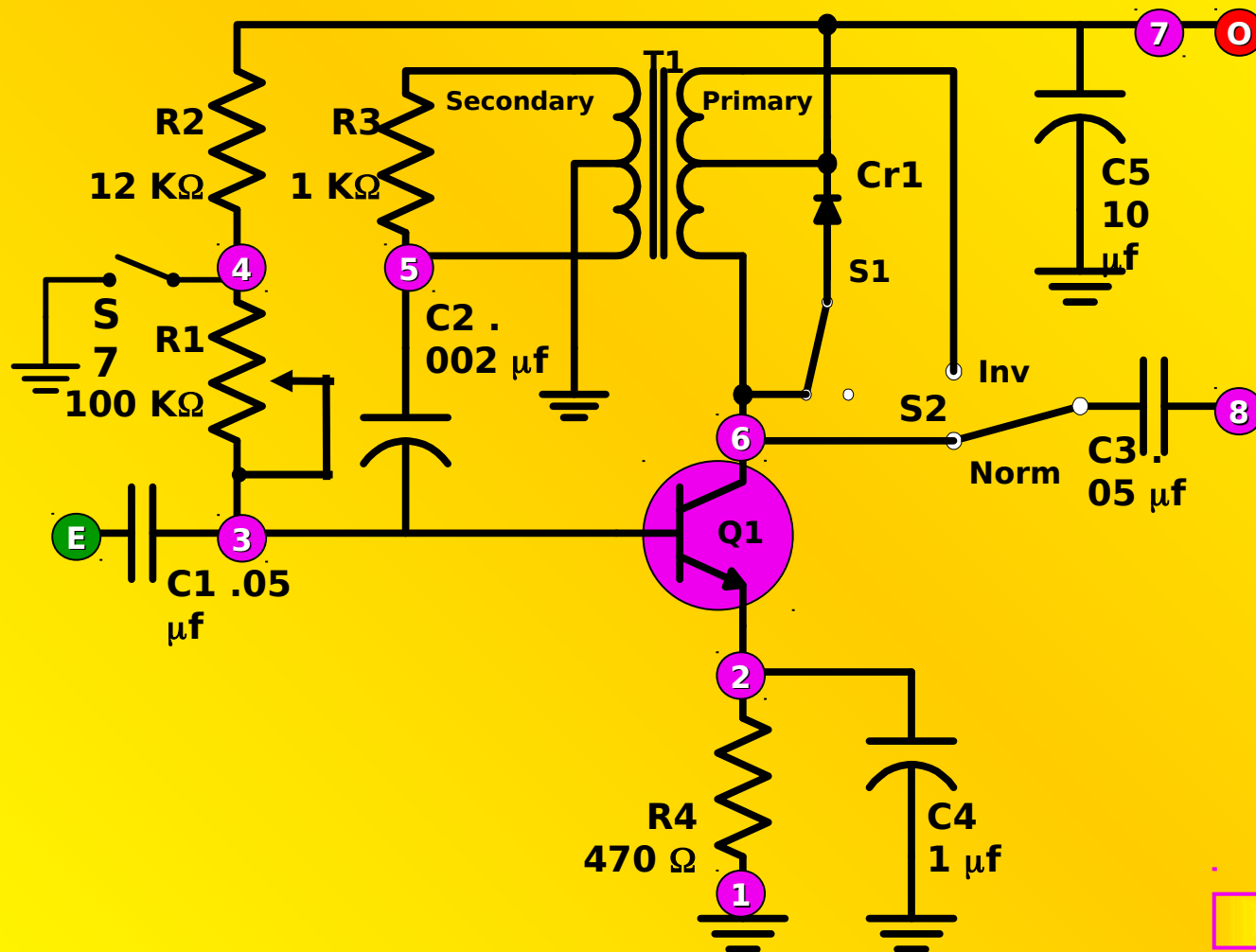
PC 42

PE

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PC 42;



PE